

PATENT

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M2115-3.PA1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s) : Hideo KATOH  
Title : SMALL-SIZED HINGE DEVICE  
Based On : Japanese Application No. 2000-179017  
International  
File Date : June 14, 2000  
Serial No. : unassigned  
File Date : herewith  
Examiner : unassigned  
Art Unit : unassigned  
Docket No. : M2115-3

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CERTIFICATE OF EXPRESS MAIL

I hereby certify that this correspondence is being deposited with the United States Postal Service as Express Mail, in an envelope addressed to: Hon. Assistant Commissioner for Patents, Washington D.C. 20231 on:

Date : June 13, 2001  
By : M.L. GOLDSTEIN  
Signature : M. Goldstein  
Customer Receipt No.: EL511078490 US

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Hon. Assistant Commissioner for Patents  
Washington, D.C. 20231

**FIRST PRELIMINARY AMENDMENT**

SIR:

Prior to examination on the merits or calculation of the required filing fee, please amend the above identified patent application as follows:

**IN THE CLAIMS:**

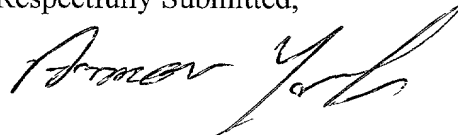
Please amend the claims as follows:

Please cancel claims 2-6.

## REMARKS

The claims have been amended solely to reduce the filing fee by eliminating the multiple dependency in the application or to simplify later prosecution. No new matter has been added. Entry of this Amendment is respectfully requested. An early action on the merits is respectfully solicited.

Respectfully Submitted,



Andrew F. Young

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Date: 6/12/01

PATENT

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M2115-3.PA2

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s) : Hideo KATOH  
Title : SMALL-SIZED HINGE DEVICE  
Based On : Japanese Application No. 2000-179017  
International  
File Date : June 14, 2000  
Serial No. : unassigned  
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Hon. Assistant Commissioner for Patents  
Washington, D.C. 20231

**SECOND PRELIMINARY AMENDMENT**

SIR:

Prior to examination on the merits, please amend the above identified patent application as follows:

**IN THE CLAIMS:**

Please amend the claims as follows:

Please add new claims 7-16.

**NEW CLAIMS**

7. (New) A small-sized hinge device for connecting a first member and a second member rotating relatively to each other, comprising:

a case body with baffle means mounted in one of the two members;

a fixed cam provided inside said case body;

a shaft arrested by said case body, one end thereof passing through said fixed cam along its axial direction and said case body along its axial direction;

an arresting body disposed in the other end of said shaft and attached to the other one of the members;

a cam slider disposed to face said fixed cam and to slide in an axial direction of said shaft with the rotation thereof being arrested by said shaft; and

a compression spring interposed resiliently between said cam slider and said arresting body.

8. (NEW) A small-sized hinge device according to claim 7, wherein:

said fixed cam is constituted independently of said case body and accommodated in said case body with the rotation thereof arrested by said case body.

9. (NEW) A small-sized hinge device according to Claim 8, further comprising:

a cam portion disposed in said fixed cam being composed of a concave portion, a first inclined portion forming the concave portion and having a large and steep slope surface, a long and gentle inclined plane portion provided adjacent to the first inclined portion, and a second inclined portion provided adjacent to the inclined plane portion forming the concave portion and having another small and steep slope surface, and

a convex portion on said cam slider contacting the cam portion by pressure

drops inside the first inclined portion of said fixed cam when the first member and the second member are in a closed state, and by opening both of the first member and the second member relatively to each other, the convex portion escapes from the first inclined portion of the concave portion to move down along the gently inclined plane portion, and when they are opened at an angle close to the maximum opening angle, it drops inside the concave portion from the second inclined portion.

10. (NEW) A small-sized hinge device, according to Claim 9, wherein:

the convex portion of said cam slider drops in the first inclined portion just before the first member and the second member are closed relatively to each other.

11. (NEW) A small-sized hinge device according to claim 10, wherein:

the first member and the second member are a transmitting section and a receiver section of a portable telephone respectively.

12. (NEW) A small-sized hinge device for connecting a first member and a second member rotating relatively to each other, comprising:

a case body with baffle means mounted in one of the two members;

a fixed cam provided inside said case body;

a shaft arrested by said case body, one end thereof passing through said fixed cam along its axial direction and said case body along its axial direction;

an arresting body disposed in the other end of said shaft and attached to the other one of the members;

a cam slider disposed to face said fixed cam and to slide in an axial direction of said shaft with the rotation thereof being arrested by said shaft;

a compression spring interposed resiliently between said cam slider and said arresting body; and

a slider washer provided on a portion of the shaft engaging with the case body.

13. (NEW) A small sized hinge device according to claim 12, wherein:

said fixed cam is constituted independently of said case body and accommodated in said case body with the rotation thereof arrested by said case body.

14. (NEW) A small-sized hinge device according to Claim 13, further comprising:

a cam portion disposed in said fixed cam being composed of a concave portion, a first inclined portion forming the concave portion and having a large and steep slope surface, a long and gentle inclined plane portion provided adjacent to the first inclined portion, and a second inclined portion provided adjacent to the inclined plane portion forming the concave portion and having another small and steep slope surface, and

a convex portion on said cam slider contacting the cam portion by pressure drops inside the first inclined portion of said fixed cam when the first member and the second member are in a closed state, and by opening both of the first member and the second member relatively to each other, the convex portion escapes from the first inclined portion of the concave portion to move down along the gently inclined plane portion, and when they are opened at an angle close to the maximum opening angle, it drops inside the concave portion from the second inclined portion.

15. A small-sized hinge device, according to Claim 14, wherein:

the convex portion of said cam slider drops in the first inclined portion just before the first member and the second member are closed relatively to each other.

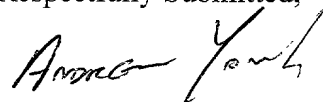
16. A small-sized hinge device according to claim 15, wherein:

the first member and the second member are a transmitting section and a receiver section of a portable telephone respectively.

## REMARKS

The claims have been amended, in a previous amendment, solely to either reduce the filing fee by eliminating the multiple dependency in the application or to simplify later prosecution. The second preliminary amendment adds proper claim material listed in the previously removed multiple dependent claims and provides a simplified format for searching and prosecution. No new matter has been added. Entry of this Amendment is respectfully requested. An early action on the merits is respectfully solicited.

Respectfully Submitted,



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